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ABSTRACT

This study examined characteristics of passive and active learners among college students enrolled in remedial classes and students enrolled in regular academic classes. Active learners are typically analytical, focused on task, tolerant of new ideas, curious, adept at processing information, able to develop other ways to solve a problem, self-motivated, responsible for their own successes and failures, less affected by others' values, and have broad interests. The 193 students in the two groups attended a regional southern university. Students with low entrance examination scores had been placed in remedial developmental studies programs. Students in regular academic programs were education majors taking introductory classes. All students responded to the 32-item Passive Active Learning Scale (PALS) developed to measure learning characteristics of students. Results indicated that the developmental studies students had a more passive learning style than their peers in the regular academic program. In addition, females had more passive learning characteristics than males. The findings have significant implications for teaching across many levels. (Contains 16 references.) (JB)

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Learning Style Differences Between Developmental Studies and Academic Core College Students: Implications for Teaching

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LEARNING STYLE DIFFERENCES BETWEEN DEVELOPMENTAL STUDIES AND ACADEMIC CORE COLLEGE STUDENTS: IMPLICATIONS FOR TEACHING

ABSTRACT

An increasing number of freshmen entering colleges and universities are seriously deficient in reading, English, and mathematics skills. Many students are unable to improve and eventually drop-out of college, despite remedial efforts. This study examines characteristics of passive and active learners with post-secondary students enrolled in developmental studies curriculum and students enrolled in regular academic core courses. Results indicate developmental studies students exhibit significantly more passive learning style characteristics than their peers enrolled in regular academic core courses. Modifications in method, materials, and learning environments are suggested.

INTRODUCTION

A substantial portion of college students' academic competency is reflected in reading and English skills. Deficits in reading and English usage result in poor academic achievement, which leads to academic probation and subsequent withdrawal. There are no winners when a college student struggles in reading and writing. Students who drop out of college because of reading and writing deficits will find employment in lower-paying positions (Johnson 1987; Kerachsky and Thornton 1987; Rusch and Phelps 1987). Colleges lose revenue when students drop-out; the nation loses skilled contributing community members. Because these students are cognitively capable of post-secondary level work, researchers must examine why these students fail in traditional college environments and require the services of learning laboratories and special classes. One such area to examine is learning style.

Learning style has been defined as "characteristics of cognitive, affective, and physiological behaviors that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment" (Keefe 1979, p.4). Modes of learning describe the preferred manner consistently chosen to learn information. Messick (1984) identified 19 dimensions of learning styles and their impact in education. He found assessing learning style can distinguish active learners from passive learners. Some learners have characteristics of

both learning styles and can be classified as neutral learners (Lee and Lehmen 1993).

Active learners display the following learning characteristics: They are: (1) analytical as opposed to global in the view of learning experience, (2) focused in their attention to the task and not easily distracted, (3) tolerant of new ideas and unusual approaches, (4) curious and enjoy novelty in a task, (5) adept in the speed and adequacy of information processing, (6) able to conceptualize different approaches to solving a problem, (7) inclusive of many items in a category to allow for more choices in problem solving, (8) self-motivated and directed for learning for the sake of learning, (9) responsible for their own successes and failures, (10) less affected by others' values, and (11) found to have broad-based interests.

Passive learners display the following characteristics: They are (1) global in their view of the learning experiences, (2) less focused in attention to task, easily distracted and more likely to not complete a task, (3) less tolerant of change and new ideas, (4) passive and prefer repetitive-types of tasks, (5) less experienced in problem solving and have fewer solutions to problems, (6) less able to conceptualize different ways to solve a problem, (7) narrow-inclusive in their categorization of information, (8) motivated by the expectations of others and more dependent on others for direction and help to fulfill only what is asked of them to do, (9) less likely to accept responsibility for successes or failures

and blame others for their lack of success, (10) more likely to follow the example of peers and family in their learning goals and (11) less interested in unfamiliar topics and more likely to fulfill minimum expectations for achievement.

Much research has been done studying learning styles of disabled and nondisabled school children (Dunn, Dunn, and Price 1987; Keefe 1982; Messick 1976, 1982, 1984; Schmeck 1983; Shipman and Shipman 1985; Yong and McIntyre 1992); however, these studies do not examine post-secondary homogeneous groups of students deficient in both English and/or reading skills.

The developmental studies program is designed to academically upgrade students who are unprepared in the basic fundamentals of English language arts, reading, mathematics, or study skills. A developmental program of special study and learning centers is designed to enhance their prospects for a successful college experience. Some of these students are learning disabled but never inform the college of their disability. Additionally college programs have no standard definition of learning disabilities (Wallace and McLoughlin 1988). Thus, many students with learning disabilities are served in developmental studies programs using methods and materials that do not address their specific learning deficits.

Despite remedial efforts, developmental studies programs are not highly successful. Numbers of students "exiting" the program can be misleading, for many simply drop out of college. New approaches to learning and retention of learning must be used if students with verbal and math deficits are going to achieve an undergraduate degree.

This problem in American colleges and universities is not going to go away or correct itself. There are indications numbers of students needing remediation are increasing. Additionally, the Americans with Disabilities Act (ADA) is a priority in higher education to serve students' needs. It is urgent to examine how learning styles may differ for students needing remediation and support in order to develop methods, materials, and learning environments in post-secondary learning centers. This research is also important in the preparation of future post-secondary students to ensure readiness for college-level work.

This study attempts to examine learning styles (i.e., active, neutral, and passive) in post-secondary students who have been identified having deficient reading and/or English skills and to answer the following research question: Do post-secondary students enrolled in developmental studies reading and/or English programs differ in learning styles from their peers who are enrolled in regular core curriculum classes?

METHOD

Subjects

Two groups of subjects were selected for this study. They were 193 students enrolled in developmental studies reading and English programs and 191 academic core education majors enrolled in introductory education courses. Students were enrolled at a regional southern university.

Students who were in developmental studies programs had Scholastic Aptitude Test (SAT) subpart scores below 400 (verbal and/or math) or whose Enhanced American College Testing Program (ACT) subscores was below 21 on ACT English and/or below 19 on ACT Mathematics.

Academic core education majors were selected from introductory education classes (i.e., Foundations of Education, Introduction to Special Education). The students met minimum college SAT requirements of subpart scores (i.e., 400 or above verbal, 400 or above mathematics).

All subjects were volunteers and met human subject selection criteria of the university. Subjects included 275 female and 109 male students, consisting of 269 White, 109 African-American, 3 Hispanic, 1 Asian, and 2 Native American. Average age of the sample was 23 years, 8 months (SD = 6 years, 6 months). Average age reflects the inclusion of

several non-traditional students in both groups. There were significantly more white students than other ethnic students, and significantly more females than males who volunteered for this study. See Table 1 for demographic data.

-----Insert Table 1 About Here-----

Materials

A 32-item paper-and-pencil learning style inventory, The Passive Active Learning Scale (PALS), was developed to measure learning characteristics of students. See Figure 1 for PALS inventory. Some items of the PALS inventory were constructed based on learning characteristics identified by the experimenters. Others were derived from the deep processing and elaborative processing scales of the Inventory of Learning Process (Schmeck 1983).

Schmeck, Ribich, and Ramanaiah (1977) developed a learning style measure named Inventory of Learning Process to assess students' learning styles. The four scales are: (1) Deep Processing (measures the extent students critically evaluate, conceptually organize, and compare and contrast information), (2) Methodical Study (students who earn high scores on this scale claim to study more often, more carefully, and more systematically than other students), (3) Fact Retention (students with high scores carefully process details and specific pieces of new information regardless of what other information-processing strategies they might

employ), and (4) Elaborative Processing (measures the efficiency students translate new information into their own terminology, generate concrete examples from their own experience, apply new information to their own lives, and use visual imagery to encode new ideas).

The PALS inventory items were measured for reliability and validity using the method proposed by Robert L. Ebel (cited in Linden 1983). Each PALS item met criteria for both measures.

-----Insert Figure 1 About Here-----

Procedures

All students were asked to respond to the 32-item PALS inventory on a 5-point Likert-type scale, with responses ranging from strongly agree, agree, undecided, disagree, to strongly disagree. All students were given as much as time as they needed to complete the inventory.

For questions designed to measure active learning style, scoring was as follows: strongly agree (5 points), agree (4 points), undecided (3 points), disagree (2 points), and strongly disagree (1 point). Example: When assigned a task, I usually get into other areas that interest me.

For questions designed to measure passive learning style, scoring was as follows: strongly agree (1 point), agree (2 points), undecided (3 points), disagree (4 points), and strongly disagree (5 points). Example:

When assigned a task, I usually concentrate on the task itself without getting into other areas.

Students' responses were translated to a computer spreadsheet program to calculate their scores. All data entered were second-checked for accuracy.

RESULTS

The major question addressed in the study was: Do post-secondary students enrolled in developmental studies reading and/or English programs differ in learning styles from their peers who are enrolled in regular core curriculum classes? A one factor analysis of variance (ANOVA) was performed.

Since academic core education majors met standardized criteria for college-level coursework, it is assumed their mean PALS score reflects learning style preferences found in typical college students. The mean score for developmental studies students was 94.95 (SD = 10.69). The mean score for academic core education majors was 98.84 (SD = 13.49).

Based on this assumption, learning style categories (i.e., active, neutral, and passive learning) were assigned using the following procedure: Subjects who scored one-half standard deviation or more above the academic core education majors' mean score (106 and above) were assigned to the active-learning group. Subjects scoring one-half standard deviation or less below the mean score (92 and below) were assigned to the passive-learning group. Those who scored between 93 and 105 were assigned to the neutral-learning group.

Table 2 compares data for sex and learning style composition for the developmental studies and academic core students.

-----Insert Table 2 About Here-----

The learning style results are presented in Table 3. A significant difference was found between developmental studies and academic core students' learning styles ($F = 9.79$, $df = 1/382$, $p = .0019$). Developmental studies students indicate a more passive approach in learning characteristics than their peers enrolled in academic core courses. Additionally female post-secondary students differed from males in learning styles ($F = 4.15$, $df = 1/382$, $p = .0423$). Results suggest females are more passive in learning characteristics than males.

-----Insert Table 3 About Here-----

DISCUSSION

The purpose of this study was to investigate if post-secondary students who could not meet academic criteria for regular admission to college differed in learning style from students who did meet academic criteria.

In terms of learning style, data suggest students who are not academically well-prepared for college work are more passive in their approach to learning. Possible explanations for this finding may be rooted in early educational experience, both in the home and school. It is suggested that active participation in learning is connected to the development of an active learning approach (Schmeck, Ribich, and Ramanaiah 1977). Colleges and universities are educating a generation of children who may have received much of their learning experiences through television. As state education budgets shrink, teachers are responsible for educating more children in the classroom, thus cutting into time allocated for individualized instruction and hands-on demonstration activities. Teachers increasingly may rely on the lecture method in order to cover required material to comply with pre-defined lesson plans; additionally progress is generally evaluated with objective measures based on knowledge, comprehension and application rather than analysis, synthesis, and judgment, skills required to be successful in college course work.

Perhaps the most interesting finding that requires additional study is that of significant differences in males and females in their learning approaches. The academic core group of subjects was in teacher training programs. A large percentage of these students was female. Yet, even though the academic core group is considered to be more active in learning style, the females were significantly passive. This finding is important to teacher training programs since they still are heavily female in student population. Essentially colleges and universities are training preservice teachers to teach in our nations' schools using active learning approaches with young children; yet, these results support female preservice teachers are not active learners themselves. Is it possible to be effective in the classroom as an active teacher while being a passive learner?

Results suggest university instructors might wish to consider using more cooperative learning approaches such as pairing passive learners with more active ones. The use of instructional video should also be beneficial to passive learners as well as the incorporation of technology such as computers using software that provides feedback to the student. Graphic organizers may prove helpful to passive learners when assigned tasks that require higher level thinking skills requiring analysis, synthesis, and evaluation of problems.

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Table 1.–Demographics of Subject Sample

	Developmental Studies (n = 193)		Academic Core (n = 191)	
Characteristic	n	%	n	%
Race				
White	102	52.85	167	87.43
African-American	88	45.60	21	10.99
Other	3	1.55	3	1.58
Sex				
Male	70	36.27	39	20.42
Female	123	63.73	152	79.58

Figure 1. –Passive Active Learning Styles Inventory

The following is a list of 32 statements that designed to assess your learning preferences. There are no right or wrong answers to the test. Please be as honest about the way that you learn as you can. After you read each statement, please rate each statement by circling the appropriate word that best indicates how the statement applies to your personal learning styles.

If you **strongly agree** that the statement applies to the way you learn, please circle **SA**.
If you **agree** that the statement applies to the way you learn, please circle **A**.
If you **could not decide** whether the statement applies to the way you learn or not, please circle **U**.
If you **do not agree** that the statement applies to the way you learn, please circle **D**.
If you **strongly disagree** that the statement applies to the way you learn, please circle **SD**.

Here is an example of what you will be asked:

SA (A) U D SD While studying, I attempt to find answers to questions I have in mind.

Circling A means that you agree that the statement applies to your personal learning styles.

Keep in mind that there are no right or wrong answers to any of these items. Just read each item carefully and put down your honest reaction.

IF YOU HAVE ANY QUESTIONS PLEASE RAISE YOUR HAND AND ASK.

SA	A	U	D	SD	1.	I like to explore ideas even if my instructor does not give grades for it.
SA	A	U	D	SD	2.	I have trouble organizing the information I remember.
SA	A	U	D	SD	3.	When doing a group project, I prefer being assigned a task instead of taking charge.
SA	A	U	D	SD	4.	While learning new concepts, practical applications often come to mind.
SA	A	U	D	SD	5.	I prefer to work on an unfamiliar topic rather than a familiar one.
SA	A	U	D	SD	6.	I do well on essay tests.
SA	A	U	D	SD	7.	I like to examine the facts of a topic and not be bothered with several interrelationships.
SA	A	U	D	SD	8.	I learn new concepts by expressing them in my own words.
SA	A	U	D	SD	9.	I enjoy taking a class that requires integrating knowledge of various fields to solve problems.
SA	A	U	D	SD	10.	I usually refer to several sources in order to understand a concept.
SA	A	U	D	SD	11.	I try to remember pieces of information without thinking of their relationships.
SA	A	U	D	SD	12.	While studying, I attempt to find answers to questions I have in mind.
SA	A	U	D	SD	13.	When I am given a task, I usually do more than what is asked.
SA	A	U	D	SD	14.	I work through practice, exercises, and sample problems.

SA	A	U	D	SD	15.	When assigned a task, I usually concentrate on the task itself without getting into other areas.
SA	A	U	D	SD	16.	I usually reorganize class notes to group related information together.
SA	A	U	D	SD	17.	I find it difficult to handle questions requiring critical evaluation.
SA	A	U	D	SD	18.	I learn new ideas by relating them to similar ideas.
SA	A	U	D	SD	19.	I usually keep class notes as they were delivered by the instructor without reorganizing.
SA	A	U	D	SD	20.	I ignore conflicts between the information obtained from different sources.
SA	A	U	D	SD	21.	When assigned a task, I usually get into other areas that interest me.
SA	A	U	D	SD	22.	After reading a unit of material, I sit and think about it.
SA	A	U	D	SD	23.	When I am given a task, I only do what is asked.
SA	A	U	D	SD	24.	I make simple charts and diagrams to help me remember material.
SA	A	U	D	SD	25.	I try to categorize information from various sources for future uses.
SA	A	U	D	SD	26.	I look for reasons behind the facts.
SA	A	U	D	SD	27.	I enjoy taking a class that requires applying knowledge from a single field to solve problems.
SA	A	U	D	SD	28.	I like to examine a topic from several view points.
SA	A	U	D	SD	29.	When studying for an examination, I prepare a list of probable questions and answers.
SA	A	U	D	SD	30.	When assigned a topic, I take the assignment and do just what is asked for, nothing more.
SA	A	U	D	SD	31.	When doing a group project, I like to be the leader.
SA	A	U	D	SD	32.	I work hardest on those assignments which affect my grades.

Table 2.–Gender Differences in Learning Style

	Developmental Studies (n = 193)		Academic Core (n = 191)	
Learning Style/Gender	n	%	n	%
Active				
Male	10	14.28	17	43.59
Female	21	17.07	40	26.32
Total	31	16.06	57	29.84
Neutral				
Male	37	52.86	15	38.46
Female	48	39.03	55	36.18
Total	85	44.04	70	36.65
Passive				
Male	23	32.86	7	17.95
Female	54	43.90	57	37.50
Total	77	39.90	64	33.51

Table 3.–One Factor ANOVA of Learning Syle Differences

Source	DF	Sum Squares	Mean Square	F	P
Between Groups	1	1448.41	1448.41	9.79	.0019
Within Groups	382	56490.55	147.88		
Total	383	57938.96			

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